



#20 (with w/ formal drawings)  
4/30/03  
PATENT

Docket No: 201969/181

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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MANAGING TRAINING DEVICES

Examiner:  
C. Harris

Art Unit:  
3713

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TECHNOLOGY CENTER R3700

SUBMISSION OF FORMAL DRAWINGS

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Dear Sir:

Enclosed for filing in the subject application are thirty-six (36) sheets of formal drawings.

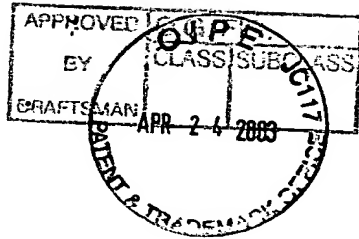
Respectfully submitted,

Date: April 21, 2003

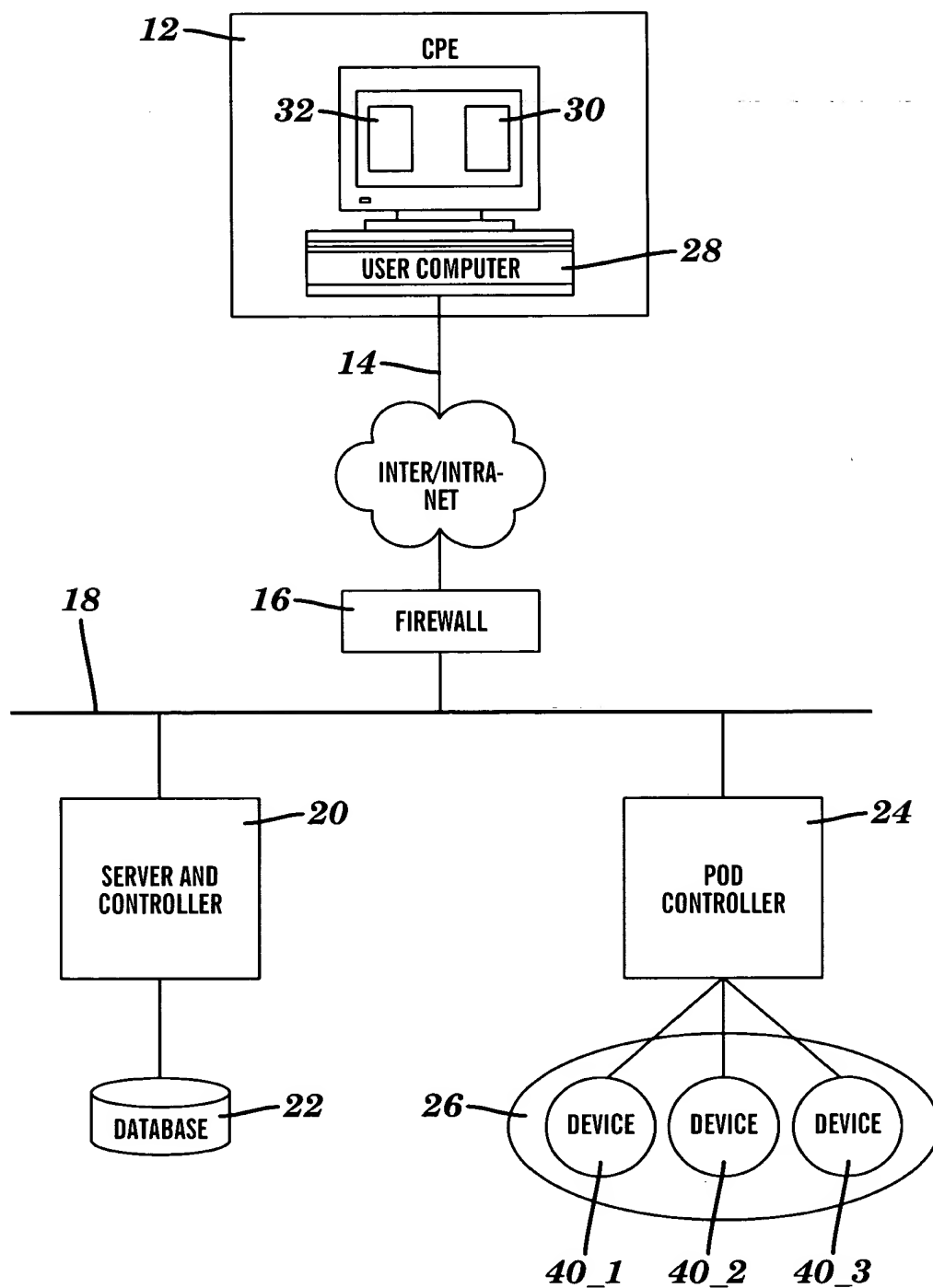
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**FIG. 1**

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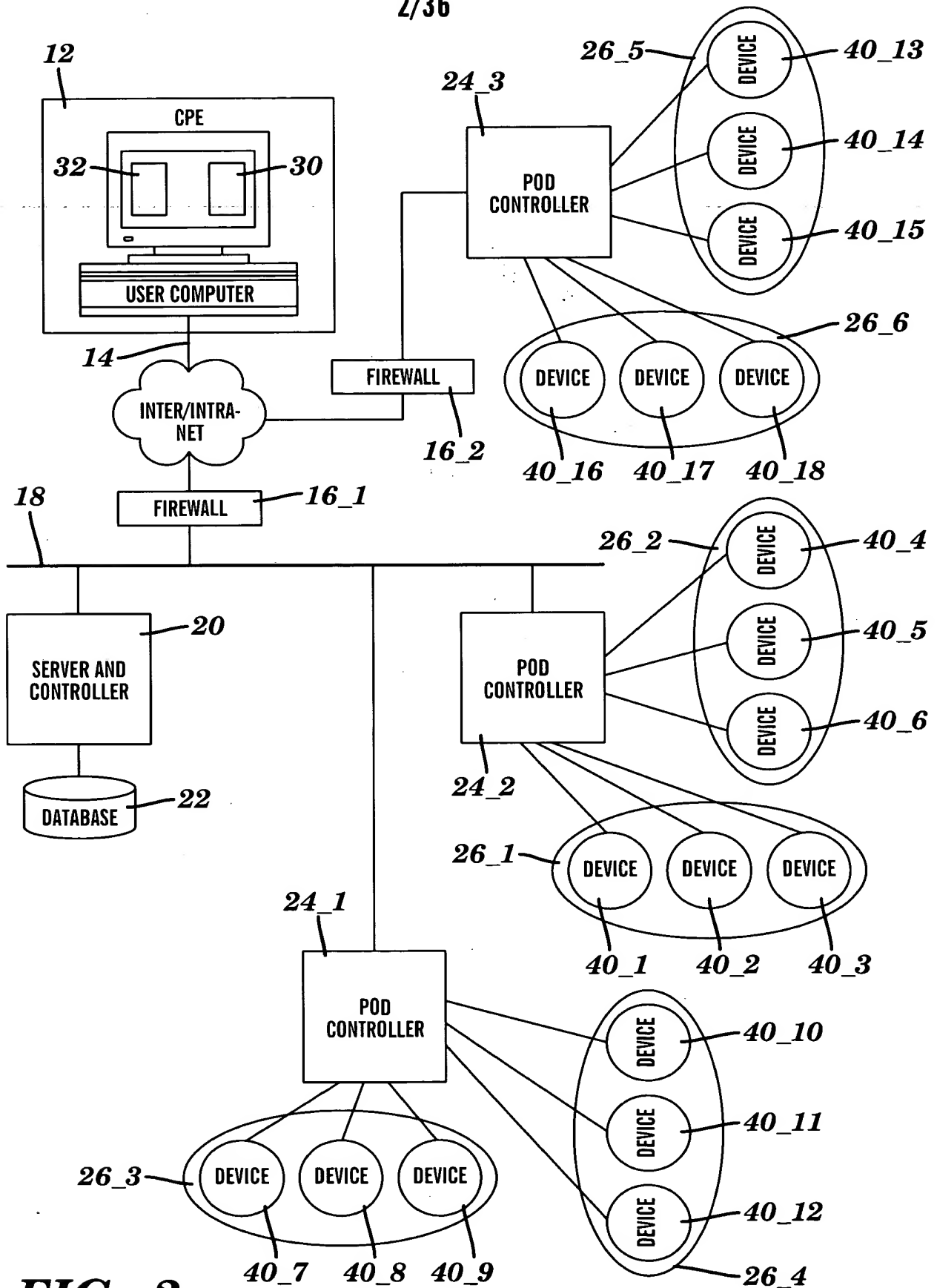
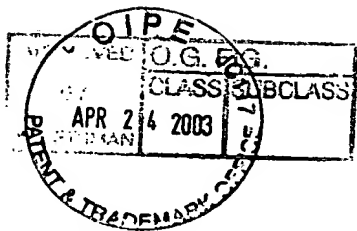


FIG. 2



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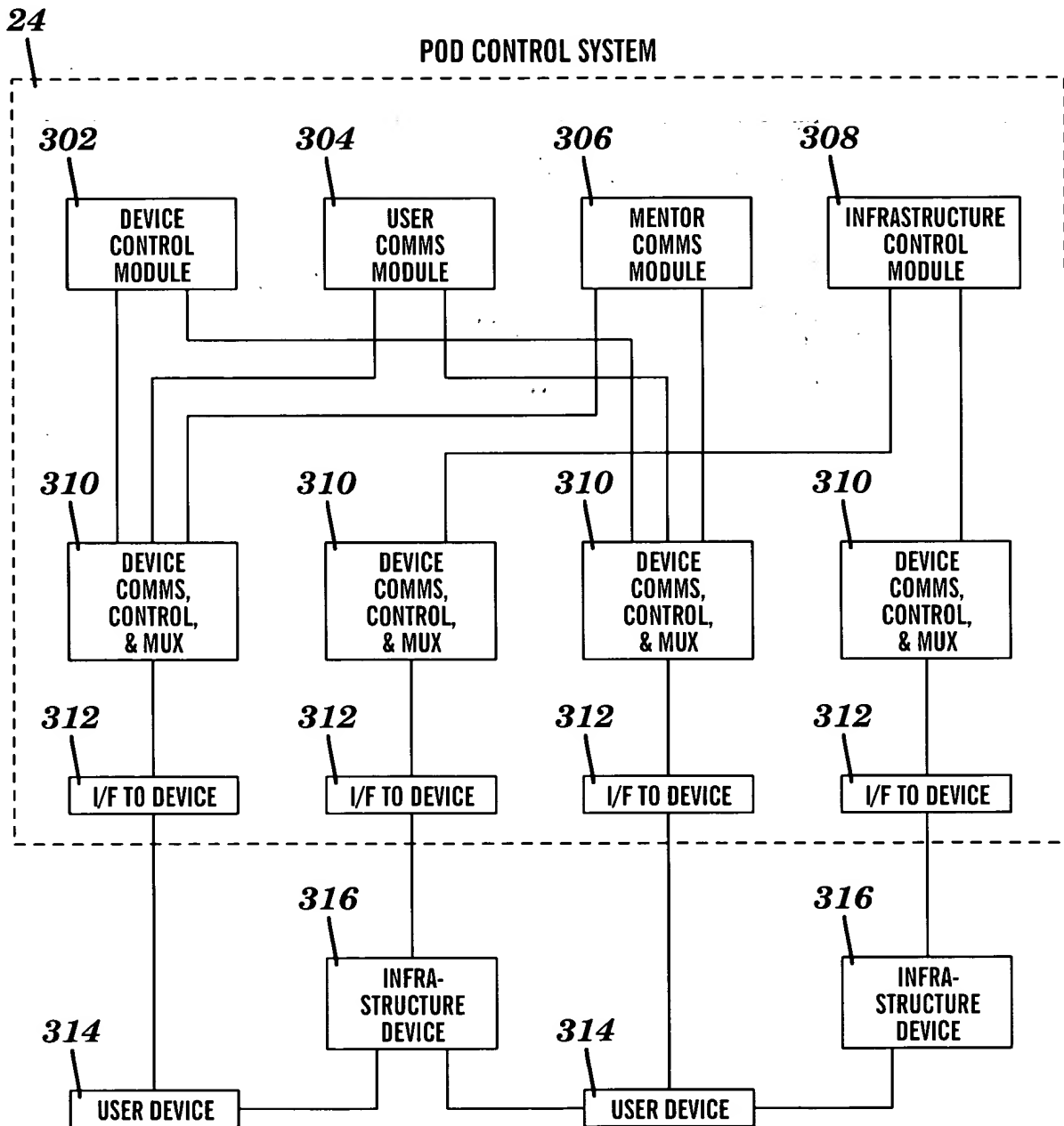
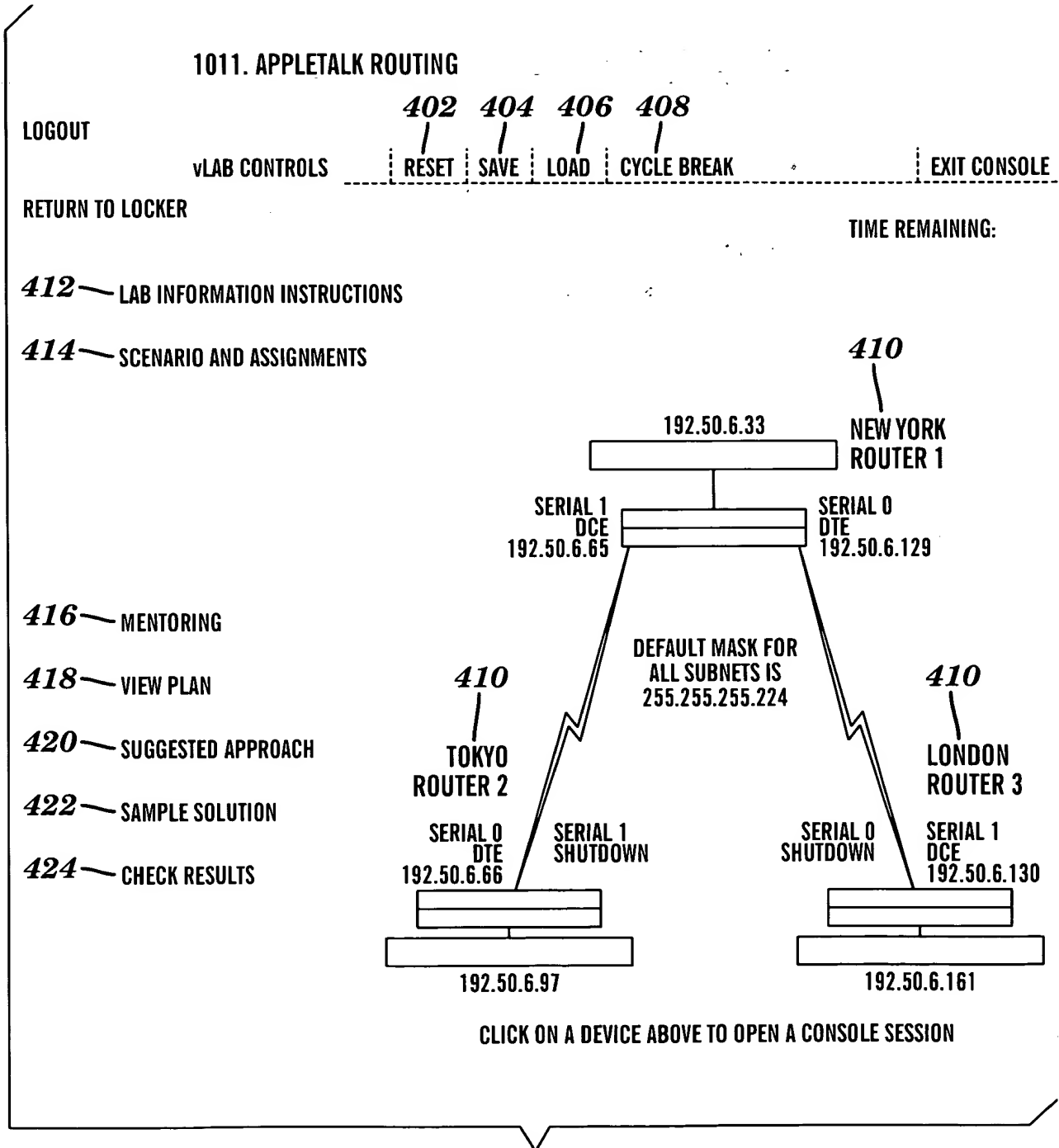
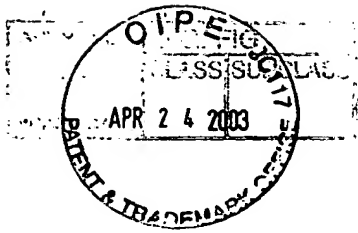


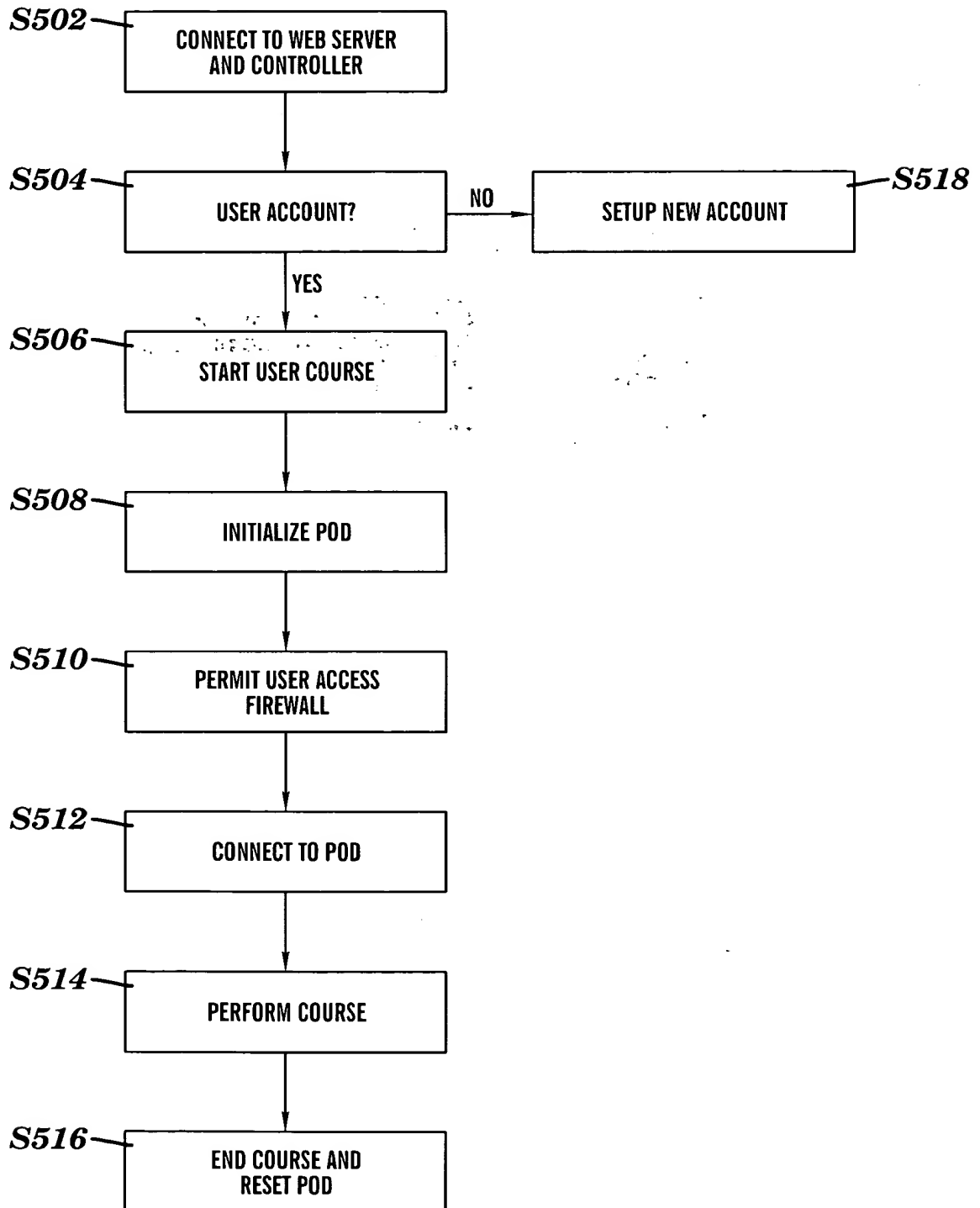
FIG. 3



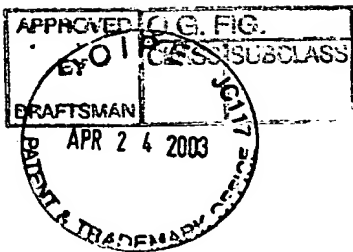
**FIG. 4**



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**FIG. 5**



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WELCOME

LOGIN

602 ACCOUNT ID

604 PASSWORD

606

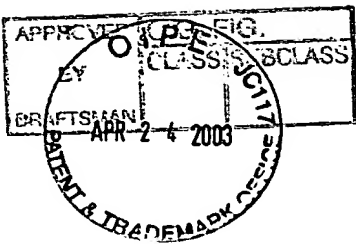
OR

NEW ACCOUNT

608

600

**FIG. 6**



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702 1. NAME

LAST NAME

LAST NAME

M.I.

704 2. ADDRESS

COMPANY

STREET

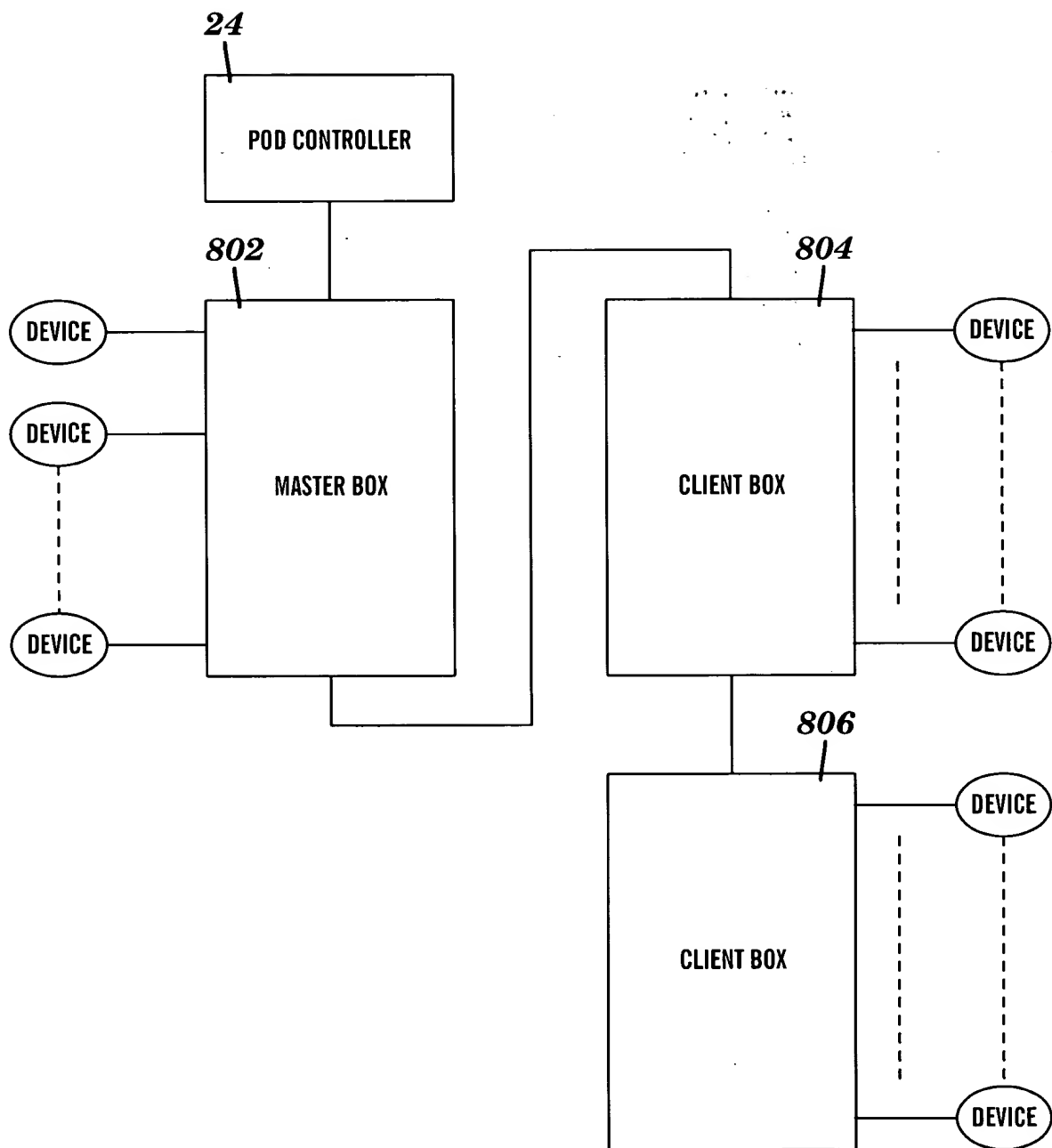
CITY

STATE

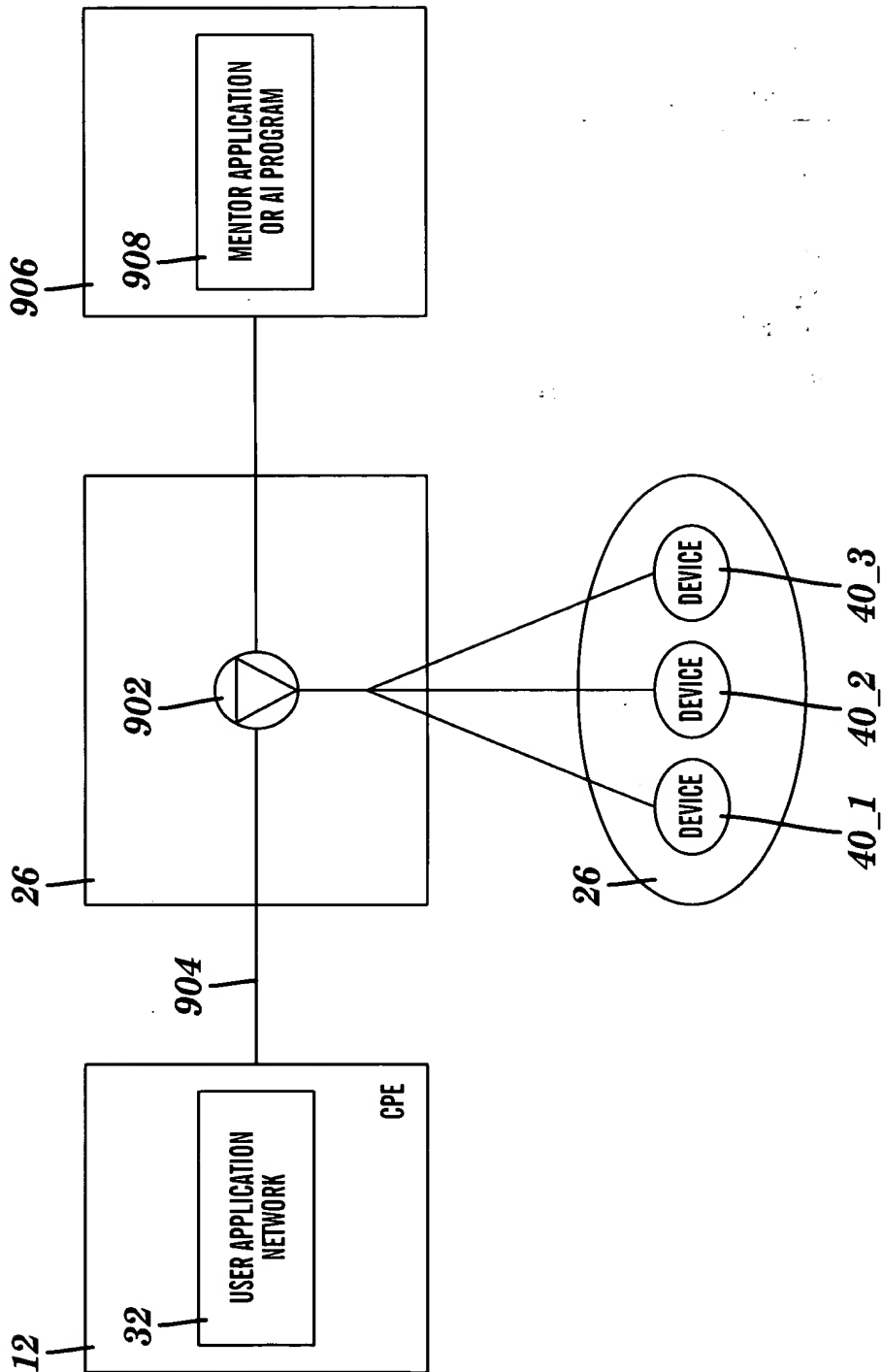
706 3. USER NAME

708 4. PASSWORD

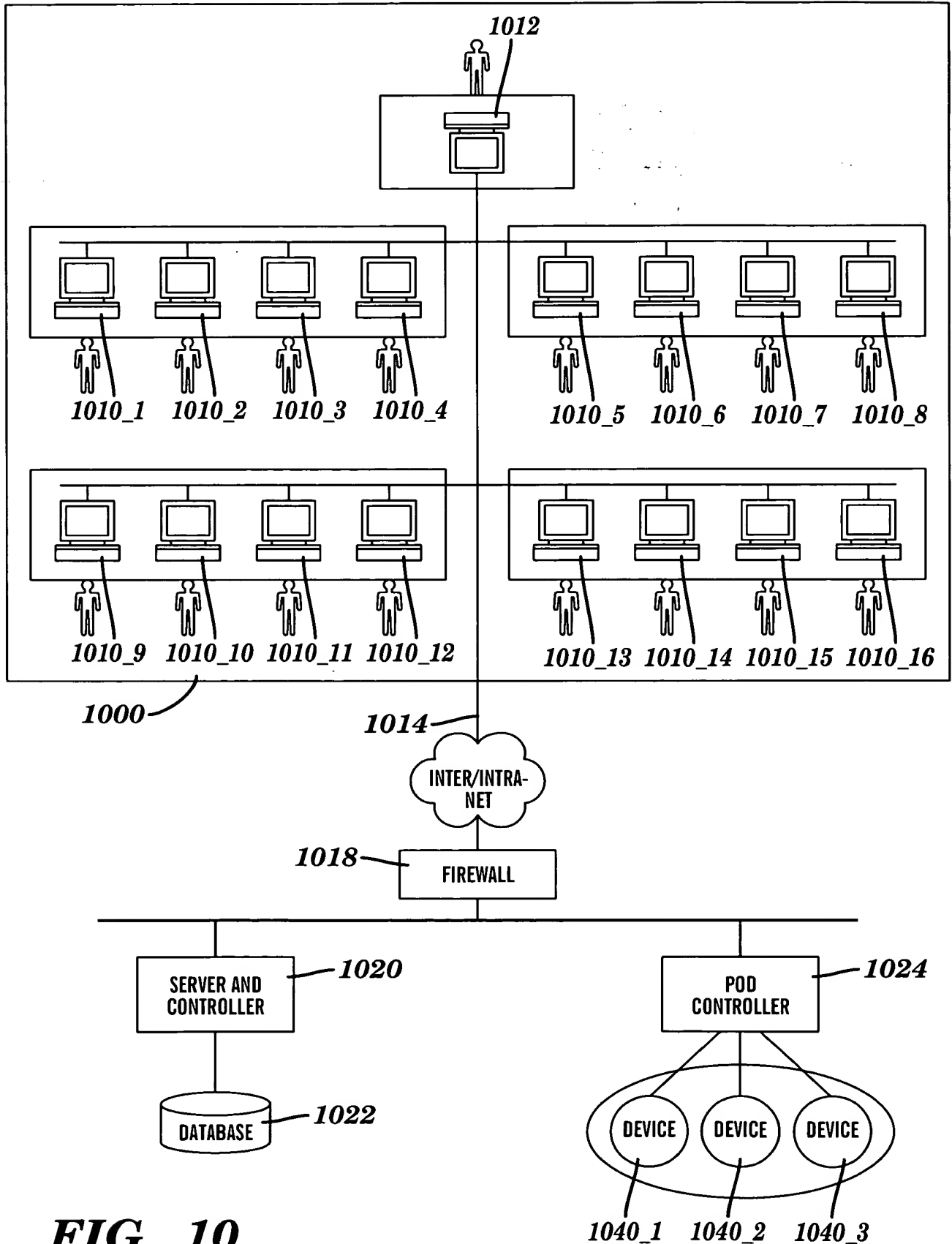
**FIG. 7**



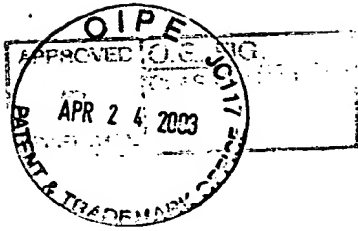
**FIG. 8**



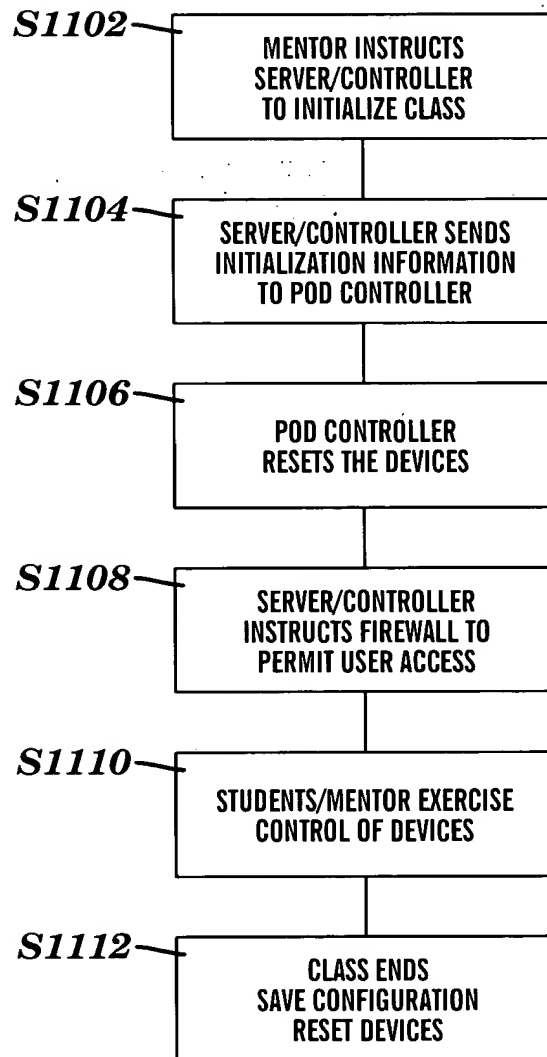
**FIG. 9**



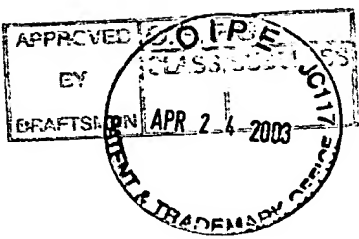
**FIG. 10**



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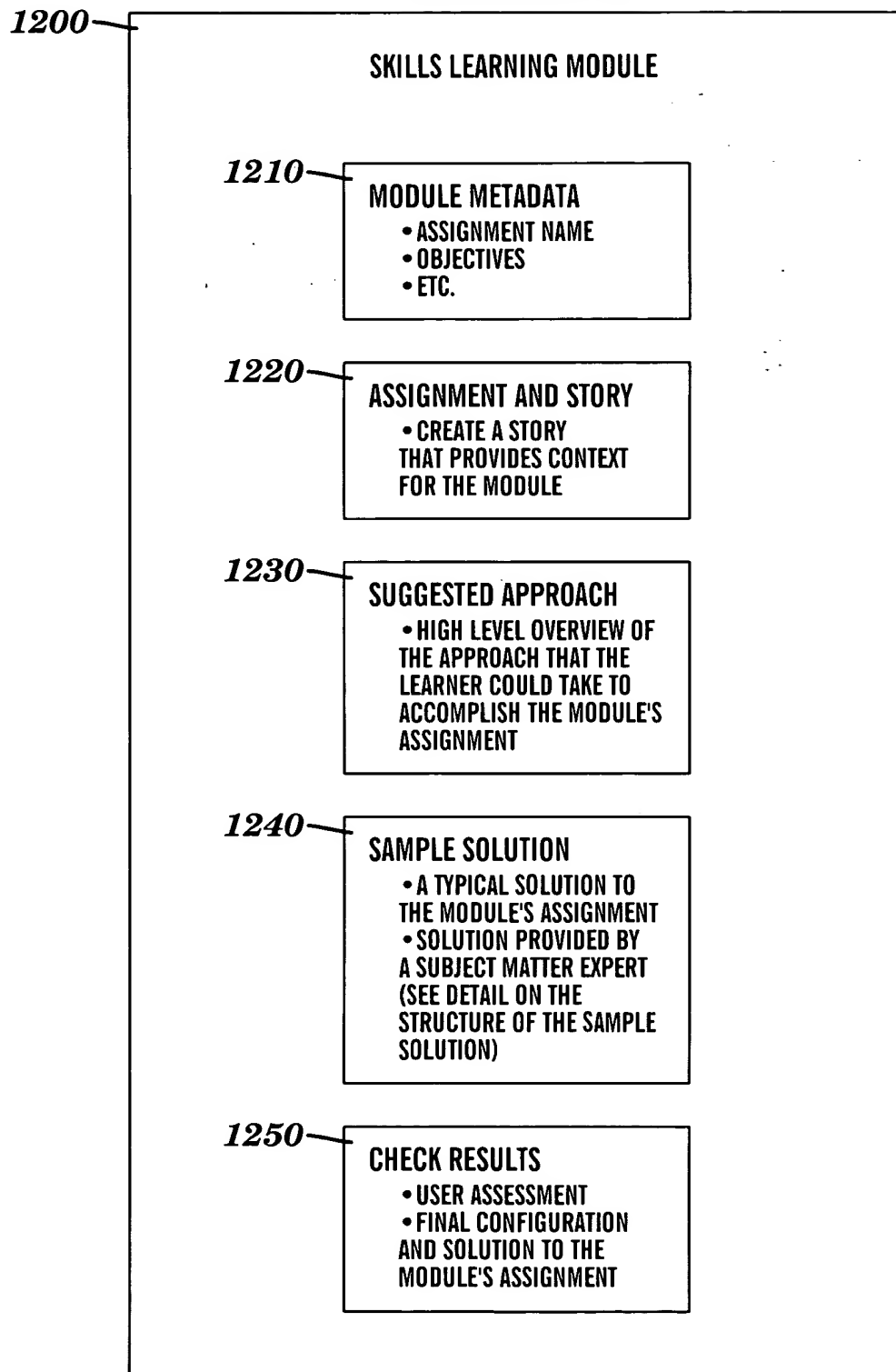


**FIG. 11**

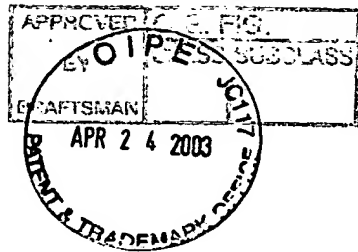


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## LEARNING STRUCTURE



**FIG. 12**



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1220

### ASSIGNMENT AND STORY

1310

#### DETAILS

- MODULE METADATA THAT IS USEFUL TO THE USER

1320

#### ASSIGNMENT

- BRIEF TEXT DESCRIPTION OF THE OBJECTIVES PRESENTED IN A STORY FORM

1330

#### STORY

- DETAILED TEXTUAL DESCRIPTION OF THE ENVIRONMENT IN WHICH THE ASSIGNMENT TAKES PLACE. IT TYPICALLY MIRRORS A REAL-WORLD SCENARIO

1340

#### CONDITIONS

- SUPPORTING INFORMATION THAT IS NOT INCLUDED IN THE STORY

1350

#### NOTES

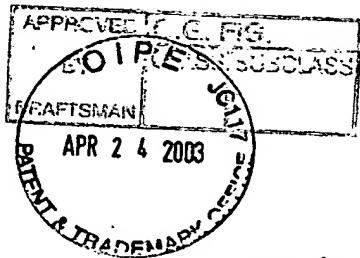
- EXCEPTION TO REAL-WORLD IMPLEMENTATIONS OR THINGS THAT SHOULD BE TAKEN INTO CONSIDERATION IN THE PERFORMANCE OF THE MODULE

1360

#### DIAGRAM (OPTIONAL)

- A PICTURE OR VISUAL OF THE MODULE'S STARTING EQUIPMENT CONFIGURATION

**FIG. 13**



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scenario	Lab Highlights	Story	Conditions	Diagram
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1011. Appletalk Routing

**Details — 1410**

vLab Title	1011. Appletalk Routing
Technology	Network Layer
Level of Difficulty	Basic
Time Required	57 mins
Certification	CCNA
Desired Learner	Experience designing and
Outcomes	implementing Appletalk in a network.
Desired Network	Appletalk routing is operational on the
Outcomes	network.

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**Assignment — 1420**

Design an Appletalk numbering plan and enable Appletalk routing

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**Story — 1430**

Your network manager has told you that your network will soon have to carry Appletalk traffic. In order for this to happen you must plan an Appletalk numbering scheme and assign Appletalk zone names for each of the segments in your network. You will also enable Appletalk routing on all of the active interfaces on your routers. Once Appletalk is enabled on the routers and configured on the interfaces, you should verify that Appletalk is functioning properly.

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**Conditions — 1440**

IP routing is already up and running on this network. **DO NOT CHANGE ANY OF THE IP ROUTING CONFIGURATIONS.**

Your Apple administrator has given you the following range of Appletalk network numbers, 2000-2999. You may use any number within that range to assign a unique Appletalk network number to each segment in the network. All of the serial links should be configured in the 'cereal zone'. You should make up unique zone names for each of the Ethernet interfaces.

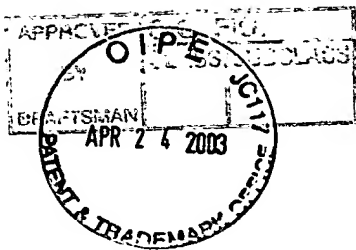
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**Notes — 1450**

The serial links between routers are implemented via direct connections in this lab and do not actually connect through any leased line services for the serial links. Here is the existing IP network. Use this as a starting point to plan your Appletalk Network.

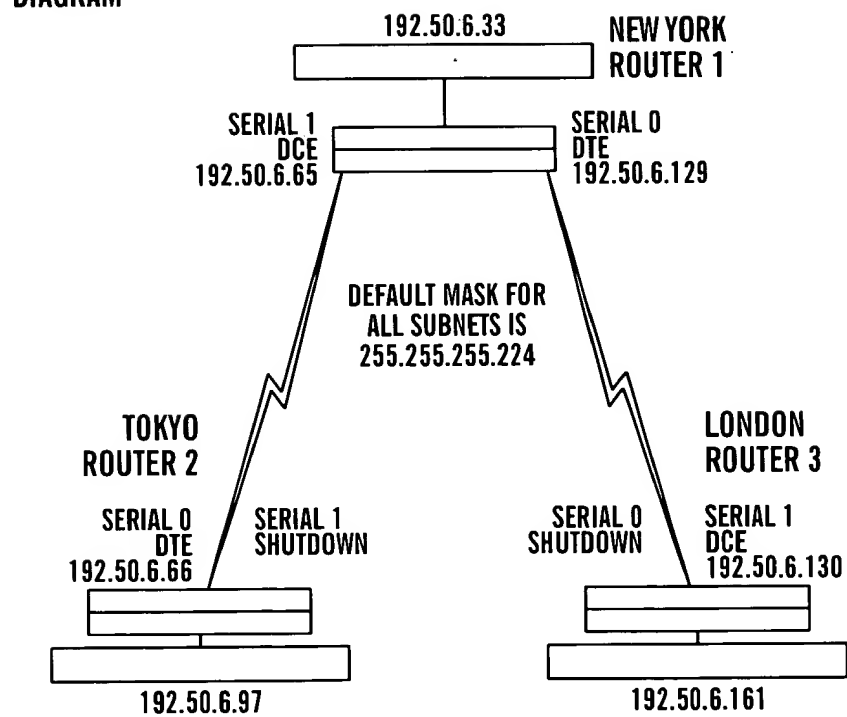
[Top](#)

**FIG. 14A**



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1460  
DIAGRAM



TOP

**FIG. 14B**

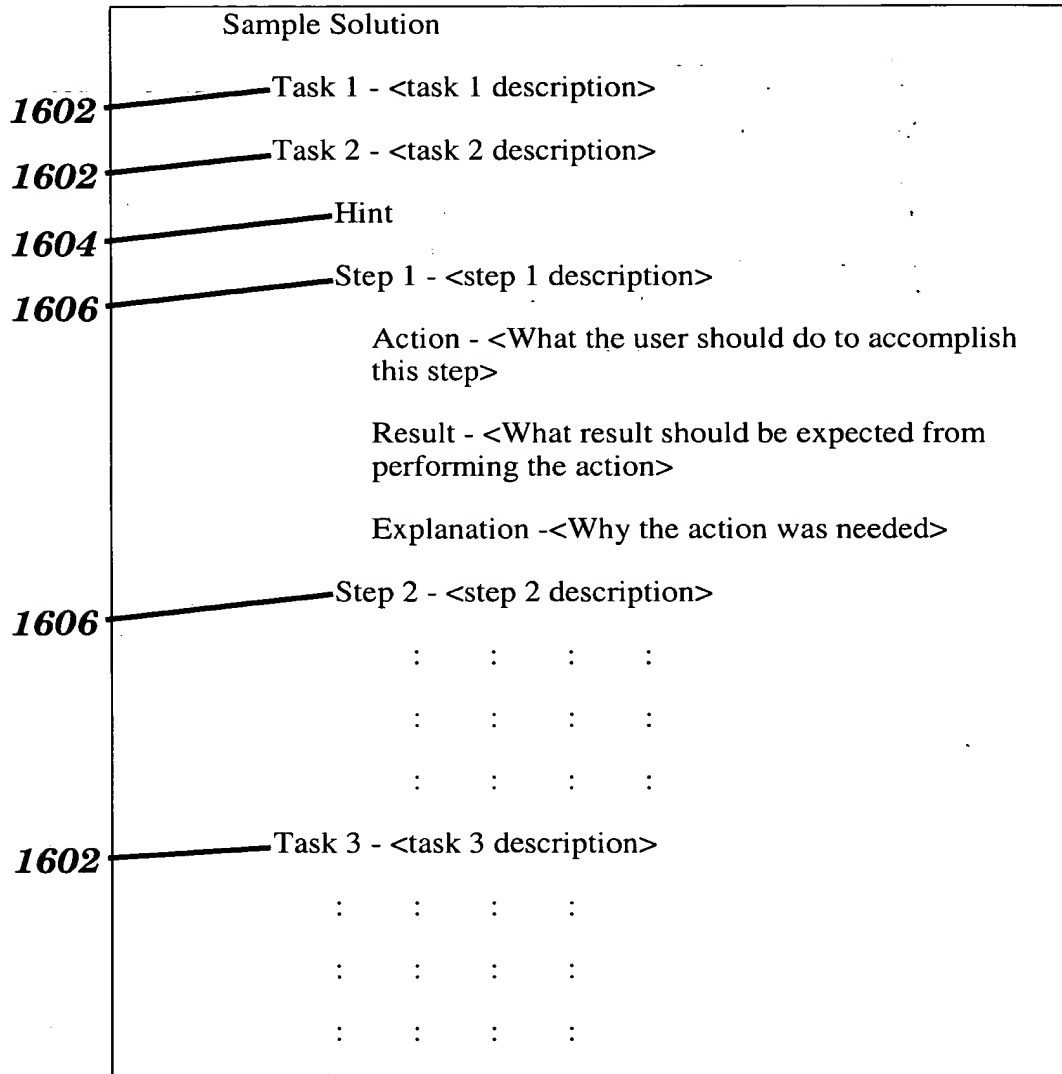
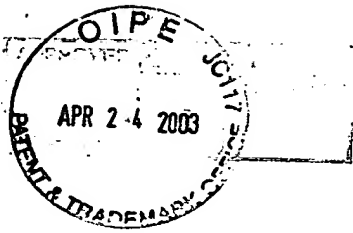


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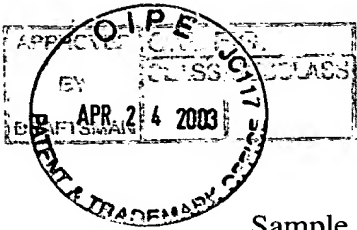
**Suggested Approach**  
1011. Appletalk Routing

*Figure out the Appletalk numbering plan. Assign a unique Appletalk cable range to each network segment. Note the Appletalk zone names on each network. Enable Appletalk routing on the routers, then configure the appropriate Appletalk cable range on each active router interface. Once that is done verify proper Appletalk operation using show commands.*

**FIG. 15**



**FIG. 16**



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## FIG. 17A

Sample Solution

Plan Appletalk addressing — 1602

**HINT** — 1604

1606

Assign on paper a unique Appletalk network number to each network segment.

Action: Choose a cable range from the addresses that were given to you by the Appletalk administrator (2000-2999) for each network segment.

Result: Each 'wire' in the network should get a different Appletalk cable range.

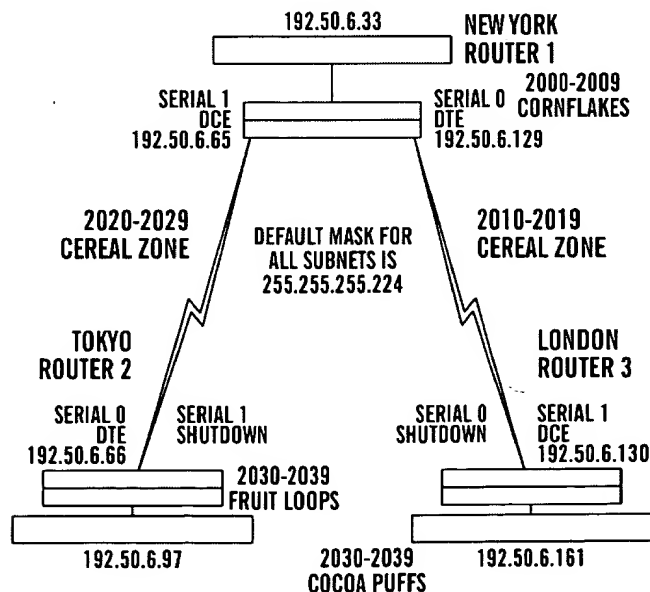
Explanation: Appletalk routing requires that every segment (or wire) in the network have a unique cable range in order for the Appletalk protocol to identify each part (link) of the network. A cable range is a contiguous range of network numbers that is assigned to a network segment. An example of a cable range would be 2300-2310. This assigns the range of network numbers from 2300 to 2310 to the network segment. Once you have a completed diagram, note the interfaces that each link connects to.

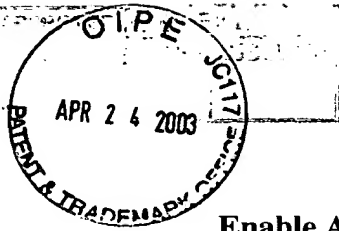
Assign on paper Appletalk zone names to each network segment, and assign all of the serial links in the 'cereal zone'. — 1606

Action: You need to think up three additional unique zone names for each of the Ethernet segments.

Result: An Appletalk zone can cover more than one network segment. Each network segment must be in at least one Appletalk zone. Zones are alpha numeric names, spaces are legal characters. Router ports that connect to the same network segment must be configured identically.

Explanation: The sample diagram shows one possible way of assigning Appletalk cable ranges and zone names to the various links in the network.





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Enable Appletalk Routing on each router. —1602

**HINT** —1604

Start the Appletalk routing processes on the New York router. —1606

Action: appletalk routing  
Result: NewYork>en  
NewYork#conf t  
Enter configuration commands, one per line. End with CNTL/Z.  
NewYork (config)#appletalk routing  
NewYork (config)#^Z  
NewYork#  
%SYS-5-CONFIG\_I: Configured from console by console  
Explanation: The Appletalk routing process is not on by default. You must tell the router that you want it to route Appletalk packets. The “Appletalk routing” command also starts the Appletalk RTMP routing protocol running.

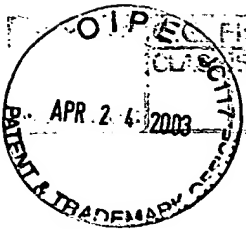
Start the Appletalk routing processes on the Tokyo router. —1606

Action: appletalk routing  
Result: Tokyo>en  
Tokyo#conf t  
Enter configuration commands, one per line. End with CNTL/Z.  
Tokyo(config)#appletalk routing  
Tokyo(config)#^Z  
Tokyo#  
%SYS-5-CONFIG\_I: Configured from console by console  
Explanation: The Appletalk routing process is not on by default. You must tell the router that you want it to route Appletalk packets. The “Appletalk routing” command also starts the Appletalk RTMP routing protocol running.

Start the Appletalk routing processes on the London router. —1606

Action: appletalk routing  
Result: London>en  
London#conf t  
Enter configuration commands, one per line. End with CNTL/Z.  
London (config) #appletalk routing  
London (config) #^Z  
London#  
%SYS-5-CONFIG\_I: Configured from console by console  
Explanation: The Appletalk routing process is not on by default. You must tell the router that you want it to route Appletalk packets. The “Appletalk routing” command also starts the Appletalk RTMP routing protocol running.

**FIG. 17B**



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1606

**Configure the proper Appletalk network number on each interface (Ethernet 0, Serial 0, and/or Serial 1) for the New York router using the diagram you made earlier.**

Action: appletalk cable-range <cable range>  
appletalk zone <zone name>

Result: New York#  
%SYS-5-CONFIG\_I: Configured from console by console  
configure terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
NewYork (config)#interface serial 0  
NewYork (config-if) #appletalk cable-range 2010-1019  
NewYork (config-if) #appletalk zone cereal zone  
NewYork (config-if) #interface serial 1  
NewYork (config-if) #appletalk cable-range 2020-2029  
NewYork (config-if) #appletalk zone cereal zone  
NewYork (config-if) #interface ethernet 0  
NewYork (config-if) #appletalk cable-range 2000-2009  
NewYork (config-if) #appletalk zone cornflakes  
NewYork (config-if) #^Z  
NewYork#  
%SYS-5-CONFIG\_I: Configured from console by console

Explanation: A unique Appletalk cable range must be assigned to each interface routing packets for the Appletalk protocol.

**Configure the proper Appletalk network number on each Interface (Ethernet 0, Serial 0, and/or Serial 1) for the Tokyo router using the diagram you made earlier.**

Action: appletalk cable-range <cable range>  
appletalk zone <zone name>

1606

Result: Tokyo#conf t  
Enter configuration commands, one per line. End with CNTL/Z  
Tokyo (config) #int e 0  
Tokyo (config-if) #appletalk cable-range 2030-2039  
Tokyo (config-if) #appletalk zone fruit loops  
Tokyo (config-if) #int s 0  
Tokyo (config-if) #appletalk cable-range 2020-2029  
Tokyo (config-if) #appletalk zone cereal zone  
Tokyo (config-if) #^Z  
Tokyo#  
%SYS-5-CONFIG\_I: Configured from console by console

Explanation: A unique Appletalk cable range must be assigned to each interface routing packets for the Appletalk protocol.

**FIG. 17C**



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## FIG. 17D

Configure the proper Appletalk network number on each interface (Ethernet 0, Serial 0, and/or Serial 1) for the London router using the diagram you made earlier.

Action: appletalk cable-range <cable range>  
appletalk zone <zone name>

1606

Result: London#conf t  
Enter configuration commands, one per line. End with CNTL/Z  
London (config) #int e 0  
London (config-if) #appletalk cable-range 2040-2049  
London (config-if) #appletalk zone cocoa puffs  
London (config-if) #int s 1  
London (config-if) #appletalk cable-range 2010-2019  
London (config-if) #appletalk zone cereal zone  
London (config-if) #^Z  
London#  
%SYS-5-CONFIG\_I: Configured from console by console

Explanation: A unique Appletalk cable range must be assigned to each interface routing packets for the Appletalk protocol.

Verify Proper Operation of Appletalk Routing

1602

HINT

1604

Use a brief version of a show command to see that the Appletalk protocol is properly configured and running on the New York router.

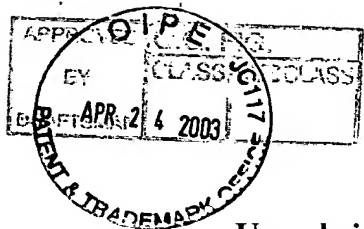
1606

Action: show appletalk interface brief

Result: NewYork#show appletalk interface brief

Interface	Address	Config	Status/Line Protocol	Atalk Protocol
BRI0	unassigned	not config'd	administratively down	n/a
BRI0:1	unassigned	not config'd	administratively down	n/a
BRI0:2	unassigned	not config'd	administratively down	n/a
Ethernet0	2002.14	Extended	up	up
Serial0	2010.174	Extended	up	up
Serial1	2025.55	Extended	up	up
Serial2	unassigned	not config'd	administratively down	n/a
Serial3	unassigned	not config'd	administratively down	n/a

Explanation: The three interfaces you configured (E0, S0 and S1) on router 1 (NewYork) all show that they are 'up'. This means that they are properly configured and operational. This is a good quick check to see if the Appletalk protocol is running. If one of the interfaces that you have configured is 'down', check to be sure that the interface at the other end of the link has the same Appletalk cable range configured on it. The number after the cable-range number is the host number. The host number is dynamically assigned and will probably be different in your display.



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Use a brief version of a show command to see that the Appletalk protocol is properly configured and running on the Tokyo router. — 1606

Action: show appletalk interface brief

Result: Tokyo#sh appletalk interface brief

Interface	Address	Config	Status/Line Protocol	Atalk Protocol
BRI0	unassigned	not config'd	administratively down	n/a
BRI0:1	unassigned	not config'd	administratively down	n/a
BRI0:2	unassigned	not config'd	administratively down	n/a
Ethernet0	2038.37	Extended	up	up
Serial0	2022.76	Extended	up	up
Serial1	unassigned	not config'd	administratively down	n/a
Serial2	unassigned	not config'd	administratively down	n/a
Serial3	unassigned	not config'd	administratively down	n/a

Explanation: The two interfaces you configured (E0 and S0) on router 2 (Tokyo) all show that they are 'up'. This means that they are properly configured and operational. This is a good quick check to see if the Appletalk protocol is running. If one of the interfaces that you have configured is 'down', check to be sure that the interface at the other end of the link has the same Appletalk cable range configured on it. The number after the cable-range number is the host number. The host number is dynamically assigned and will probably be different in your display.

Use a brief version of a show command to see that the Appletalk protocol is properly configured and running on the London router. — 1606

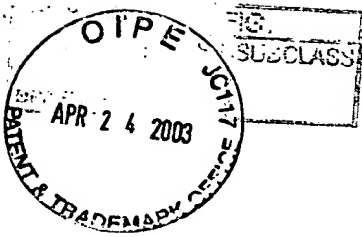
Action: show appletalk interface brief

Result: London#show appletalk interface brief

Interface	Address	Config	Status/Line Protocol	Atalk Protocol
BRI0	unassigned	not config'd	administratively down	n/a
BRI0:1	unassigned	not config'd	administratively down	n/a
BRI0:2	unassigned	not config'd	administratively down	n/a
Ethernet0	2045.215	Extended	up	up
Serial0	unassigned	not config'd	administratively down	n/a
Serial1	2013.235	Extended	up	up
Serial2	unassigned	not config'd	administratively down	n/a
Serial3	unassigned	not config'd	administratively down	n/a

Explanation: The two interfaces you configured (E0 and S1) on router 3 (London) all show that they are 'up'. This means that they are properly configured and operational. This is a good quick check to see if the Appletalk protocol is running. If one of the interfaces that you have configured is 'down', check to be sure that the interface at the other end of the link has the same Appletalk cable range configured on it. The number after the cable-range number is the host number. The host number is dynamically assigned and will probably be different in your display.

**FIG. 17E**



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Use a show Appletalk command to view all of the Appletalk parameters of a particular interface. **1606**

Action: show Appletalk interface  
Result: NewYork#show appletalk interface serial 0  
Serial0 is up, line protocol is up  
AppleTalk cable range is 2010-2019  
AppleTalk address is 2010.174, Valid  
AppleTalk zone is "cereal zone"  
AppleTalk port configuration verified by 2013.235  
AppleTalk address gleaming is not supported by hardware  
AppleTalk route cache is enabled

Explanation: The important thing to note here is that the interface show 'up' and line protocol is 'up'. This means the interface is communicating with the network it is connected to. You can also see the Appletalk address of this interface on the fourth line of the example. You can also see that the configuration of this port has been verified by the router at the other end of the link.

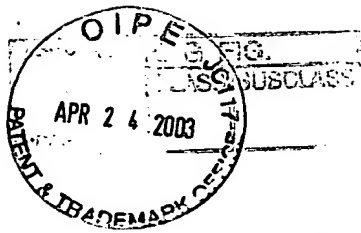
Use the 'show Appletalk route' command to look at the Appletalk routing table. **1606**

Action: show appletalk route  
Result: NewYork#show appletalk route  
Codes: R-RTMP derived, E-EIGRP derived, C-connected, A-AURP  
S-static P - Proxy  
5 routes in internet

The first zone listed for each entry is its default (primary) zone.  
C Net 2000-2009 directly connected, Ethernet0, zone cornflakes  
C Net 2010-2019 directly connected, Serial0, zone cereal zone  
C Net 2020-2029 directly connected, Serial1, zone cereal zone  
R Net 2030-2039 [1/G] via 2022.76, 2 sec, Serial1, zone fruit loops  
R Net 2040-2049 [1/G] via 2013.235, 0 sec, Serial0, zone cocoa puffs  
New York#

Explanation: After the routing updates propagate (roughly 90 seconds), each router should have five Appletalk routes in its routing table. If they do not, make sure that the routers are properly configured.

**FIG. 17F**



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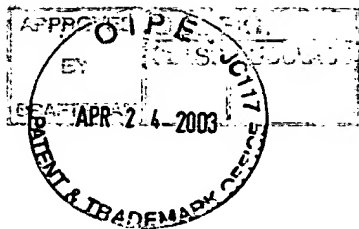
## FIG. 18A

### Check Results

#### Router 1

```
!  
hostname Washington  
!  
enable password cisco  
!  
!  
Interface Ethernet0  
ip address 10.28.0.1 255.255.0.0  
no keepalive  
no shutdown  
!  
interface Serial0  
ip address 10.33.0.2 255.255.0.0  
ip mroute-cache  
no shutdown  
!  
interface Serial1  
ip address 10.29.0.1 255.255.0.0  
clockrate 56000  
no shutdown  
!  
interface Serial2  
no ip address  
shutdown  
!  
interface Serial3  
no ip address  
shutdown  
!  
interface BRI0  
no ip address  
shutdown  
!  
router rip  
network 10.0.0.0  
!  
no ip classless  
!  
!  
banner motd%
```

IP RIP Foundation Lab Router1  
Version: 1.0  
Date: July 10, 1998



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**FIG. 18B**

Passwords:

User – cisco

Enable – cisco

!

!

line con 0

password cisco

login

line aux 0

line vty 0 4

password cisco

login

!

end

### Router 2

!

hostname Minot

!

enable password sanfran

!

!

interface Ethernet0

ip address 10.30.0.1 255.255.0.0

no keepalive

no shutdown

!

interface Serial0

ip address 10.29.0.2 255.255.0.0

ip mroute-cache

no shutdown

!

interface Serial1

ip address 10.31.0.1 255.255.0.0

clockrate 56000

no shutdown

!

interface Serial2

no ip address

shutdown

!

interface Serial3

no ip address

shutdown

!

interface BRI0

no ip address

shutdown

!

router rip



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**FIG. 18C**

network 10.0.0.0

!

ip classless

!

!

banner motd %

IP RIP Foundation Lab Router2

Version: 1.0

Date: July 10, 1998

Passwords:

User – cisco

Enable – sanfran

!

line con 0

password cisco

login

line aux 0

line vty 0 4

password cisco

login

!

end

**Router 3**

!

hostname Leesville

!

enable password sanfran

!

!

interface Ethernet0

ip address 10.32.0.1 255.255.0.0

no keepalive

no shutdown

!

interface Serial0

ip address 10.31.0.2 256.255.0.0

ip mroute-cache

no shutdown

!

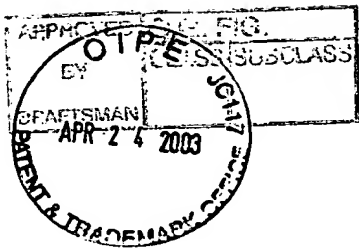
Interface Serial1

ip address 10.33.0.1 255.255.0.0

clockrate 56000

no shutdown

!



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## FIG. 18D

interface Serial2  
no ip address  
shutdown

!

interface Serial3  
no ip address  
shutdown

!

interface BRI0  
no ip address  
shutdown

!

router rip  
network 10.0.0.0

!

ip classless

!

!

banner motd %

IP RIP Foundation Lab Router3

Version: 1.0

Date: July 10, 1998

Passwords:

User – cisco

Enable – sanfran

!

line con 0

password cisco

login

line aux 0

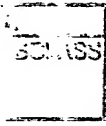
line vty 0 4

password cisco

login

!

end



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## FIG. 19A

### Check Results

Check your configuration to confirm the network is operating per the Story and Conditions. (Use appropriate show, debug, and ping commands to verify network operations).

#### HINT

Verify that the physical links in the network are running.

Action: show ip interface brief

Results: HUB#sh ip int brief

Interface	IP-Address	OK?	Method	Status	Protocol
BRI0	unassigned	YES	unset	administratively down	down
BRI0:1	unassigned	YES	unset	administratively down	down
BRI0:2	unassigned	YES	unset	administratively down	down
Ethernet0	192.168.2.129	YES	manual	up	up
Serial0	172.18.1.33	YES	manual	up	up
Serial1	192.168.2.66	YES	manual	up	up
Serial2	unassigned	YES	unset	administratively down	down
Serial3	unassigned	YES	unset	administratively down	down

Explanation: The configured interfaces should all have **up** for Status and **up** for Protocol. If not, use other **show** commands to determine . . .

Confirm the routing table on Branch\_1 supports the Story and Conditions.

Action: show ip route

Result: Branch\_1#show ip route

Codes: C – connected, S – static, I – IGRP, R – RIP, M – mobile, B – BGP  
D – EIGRP, EX – EIGRP external, O – OSPF, IA – OSPF inter area  
N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2  
E1 – OSPF external type 1, E2 – OSPF external type 2, E – EGP  
i – IS-IS, L1 – IS-IS level-1, L2 – IS-IS level-2, \* – candidate default  
U – per-user static route, o – ODR

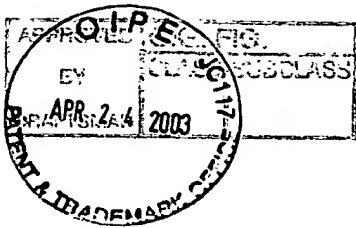
Gateway of last resort is 192.168.2.66 to network 172.18.0.0

```
I*    172.18.0.0/16 [100/82125] via 192.168.2.66, 00:00:11, Serial0
      192.168.2.0/28 is subnetted, 3 subnets
C      192.168.2.64 is directly connected, Serial0
C      192.168.2.192 is directly connected, Ethernet0
I      192.168.2.128 [100/80225] via 192.168.2.66, 00:00:12, Serial0
```

Branch\_1#

Explanation: Except for the time since last routing update, your routing table on Branch\_1 should match the Results above. Do your metrics well?

Note that the Gateway of last resort and the candidate default route must both appear.



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**Confirm the routing table on the ISP supports the Story and Conditions.**

Action: show ip route

Result: ISP#sh ip ro

Codes: C – connected, S – static, I – IGRP, R – RIP, M – mobile, B – BGP  
D – EIGRP, EX – EIGRP external, O – OSPF, IA – OSPF inter area  
N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2  
E1 – OSPF external type 1, E2 – OSPF external type 2, E – EGP  
i – IS-IS, L1 – IS-IS level-1, L2 – IS-IS level-2, \* – candidate default  
U – per-user static route, o – ODR

Gateway of last resort is not set

```
C      172.18.0.0/30 is subnetted, 1 subnets
      172.18.1.32 is directly connected, Serial1
      10.0.0.0/24 is subnetted, 1 subnets
C      10.1.3.0 is directly connected, Ethernet0
S      192.168.2.0/24 [1/0] via 173.18.1.33
ISP#
```

Explanation: The ISP should have three subnets listed.

**Confirm the routing table on the Hub supports the Story and Conditions.**

Action: show ip route

Result: *{There are two main possible results, depending on how the default route was configured}*

Hub#sh ip ro

Codes: C – connected, S – static, I – IGRP, R – RIP, M – mobile, B – BGP  
D – EIGRP, EX – EIGRP external, O – OSPF, IA – OSPF inter area  
N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2  
E1 – OSPF external type 1, E2 – OSPF external type 2, E – EGP  
i – IS-IS, L1 – IS-IS level-1, L2 – IS-IS level-2, \* – candidate default  
U – per-user static route, o – ODR

Gateway of last resort is 172.18.1.34 to network 0.0.0.0

```
*      172.18.0.0/30 is subnetted, 1 subnets
C      172.18.1.32 is directly connected, Serial0
      192.168.2.0/28 is subnetted, 3 subnets
C      192.168.2.64 is directly connected, Serial1
I      192.168.2.192 [100/80225] via 192.168.2.65, 00:00:13, Serial1
C      192.168.2.128 is directly connected, Ethernet0
S*     0.0.0.0/0 [1/0] via 172.18.1.34
Hub#
```

... or ...

**FIG. 19B**



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## FIG. 19C

Hub#sh ip ro

Codes: C – connected, S – static, I – IGRP, R – RIP, M – mobile, B – BGP  
D – EIGRP, EX – EIGRP external, O – OSPF, IA – OSPF inter area  
N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2  
E1 – OSPF external type 1, E2 – OSPF external type 2, E – EGP  
i – IS-IS, L1 – IS-IS level-1, L2 – IS-IS level-2, \* – candidate default  
U – per-user static route, o – ODR

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

```
*      172.18.0.0/30 is subnetted, 1 subnets
C          172.18.1.32 is directly connected, Serial0
          192.168.2.0/28 is subnetted, 3 subnets
C          192.168.2.64 is directly connected, Serial1
I          192.168.2.192 [100/80225] via 192.168.2.65, 00:00:19, Serial1
C          192.168.2.128 is directly connected, Ethernet0
S*       0.0.0.0/0 is directly connected, Serial0
```

Hub#

Explanation: Both options for configuring a default route will support the network.

Note: Do your metrics match as well?

**Verify that the network is operating as described in the Story and Conditions.**

Action: ping *ip-address*

Result: Branch\_1#ping 10.1.3.1

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 10.1.3.1, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 32/34/36 ms

Branch\_1#

...

ISP#ping

Protocol [ip]:

Target IP address: 192.168.2.129

Repeat count [5]:

Datagram size [100]:

Timeout in seconds [2]:

Extended commands [n]: y

Source address or interface: 10.1.3.1

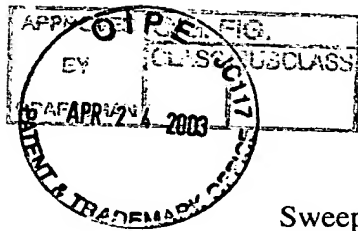
Type of service [0]:

Set DF bit in IP header? [no]:

Validate reply data? [no]:

Data pattern [0xABCD]:

Loose, Strict, Record, Timestamp, Verbose [none]:



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Sweep range of sizes [n]:  
Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 192.168.2.129, timeout is 2 seconds:  
!!!!  
Success rate is 100 percent (5/5), round-trip min/avg/max = 16/17/20 ms

ISP#ping  
Protocol [ip]:  
Target IP address: **192.168.2.193**  
Repeat count [5]:  
Datagram size [100]:  
Timeout in seconds [2]:  
Extended commands [n]: y  
Source address or interface: **10.1.3.1**  
Type of service [0]:  
Set DF bit in IP header? [no]:  
Validate reply data? [no]:  
Data pattern [0xABCD]:  
Loose, Strict, Record, Timestamp, Verbose [none]:  
Sweep range of sizes [n]:  
Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 192.168.2.193, timeout is 2 seconds:  
!!!!  
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/33/36 ms

ISP#

Explanation: Your ping tests from Branch\_1 to the subnet 10.1.3.0 should be successful. Extending ping tests from the ISP's Ethernet to the Ethernet and Branch\_1's Ethernet should also be successful.

**Verify that the routing updates have been minimized as described in the Story and Conditions.**

Action: debug ip packet

Result: ISP#**debug ip packet**  
IP packet debugging is on  
ISP#  
...  
ISP#**no debug ip packet**  
IP packet debugging is off  
ISP#

Explanation: The debugging information should be quiet after several minutes. If so, you can turn off IP packet debugging, and know that IG routing packets are not being sent to the ISP.

**FIG. 19D**



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## 1002. Connectivity Between Routers vLab Archive

### ▼ Archive History

#### ▼ Archive Date

Date Lab Started: 1999-Jul-15 16:06:40.864802

Date Lab Completed: 1999-Jul-15 16:09:49.268665

Date Lab Archived: 1999-Jul-15 16:10:23.670189

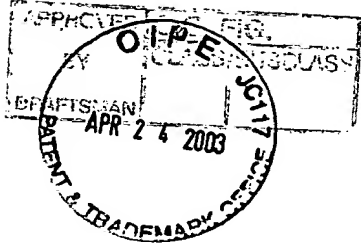
#### ▼ Lab Information

**2002** — Plan

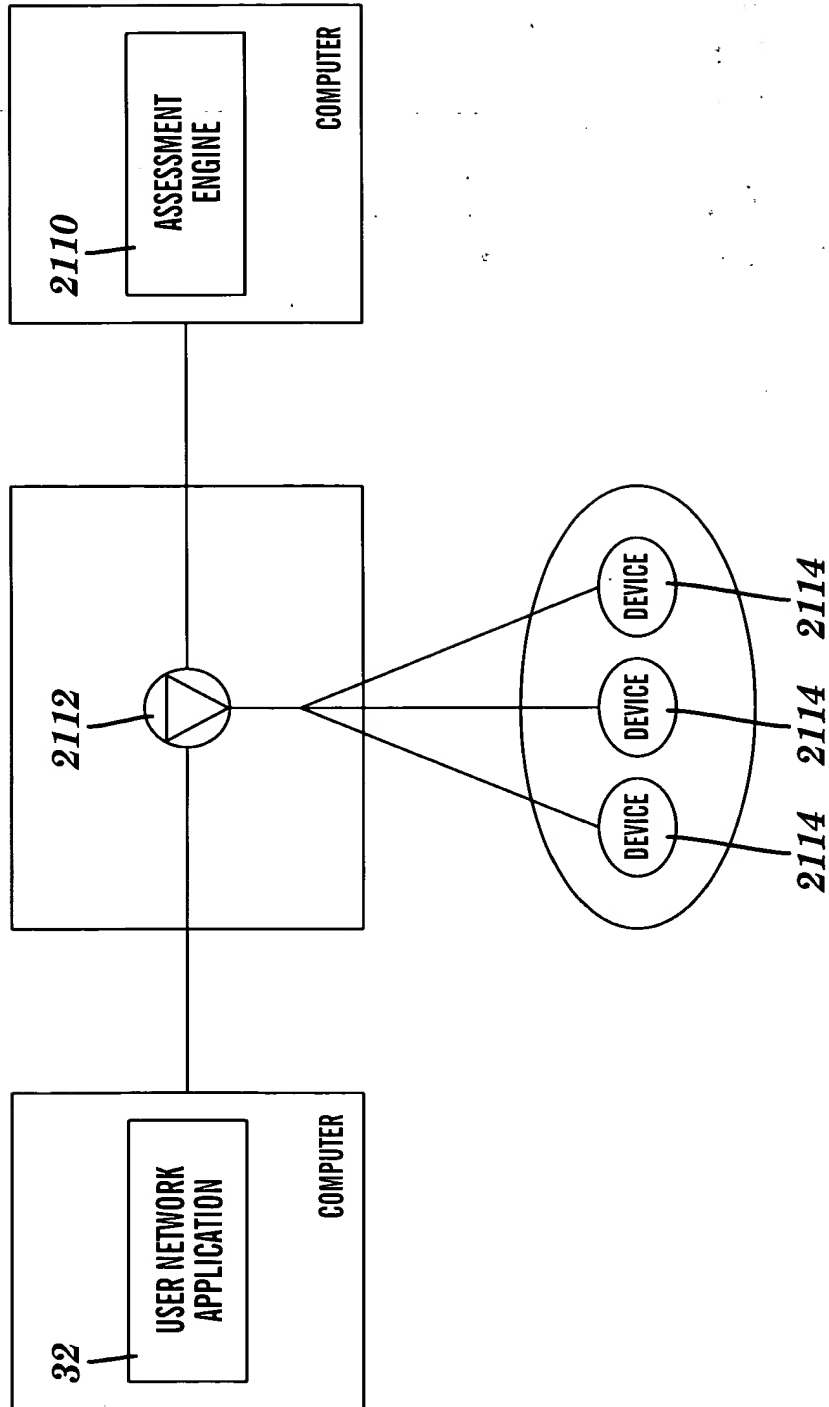
**2004** — Debrief

**2006** — Saved Configs

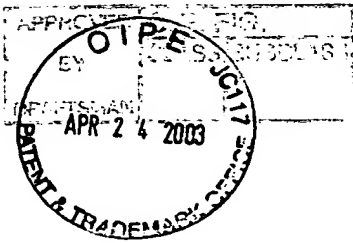
***FIG. 20***



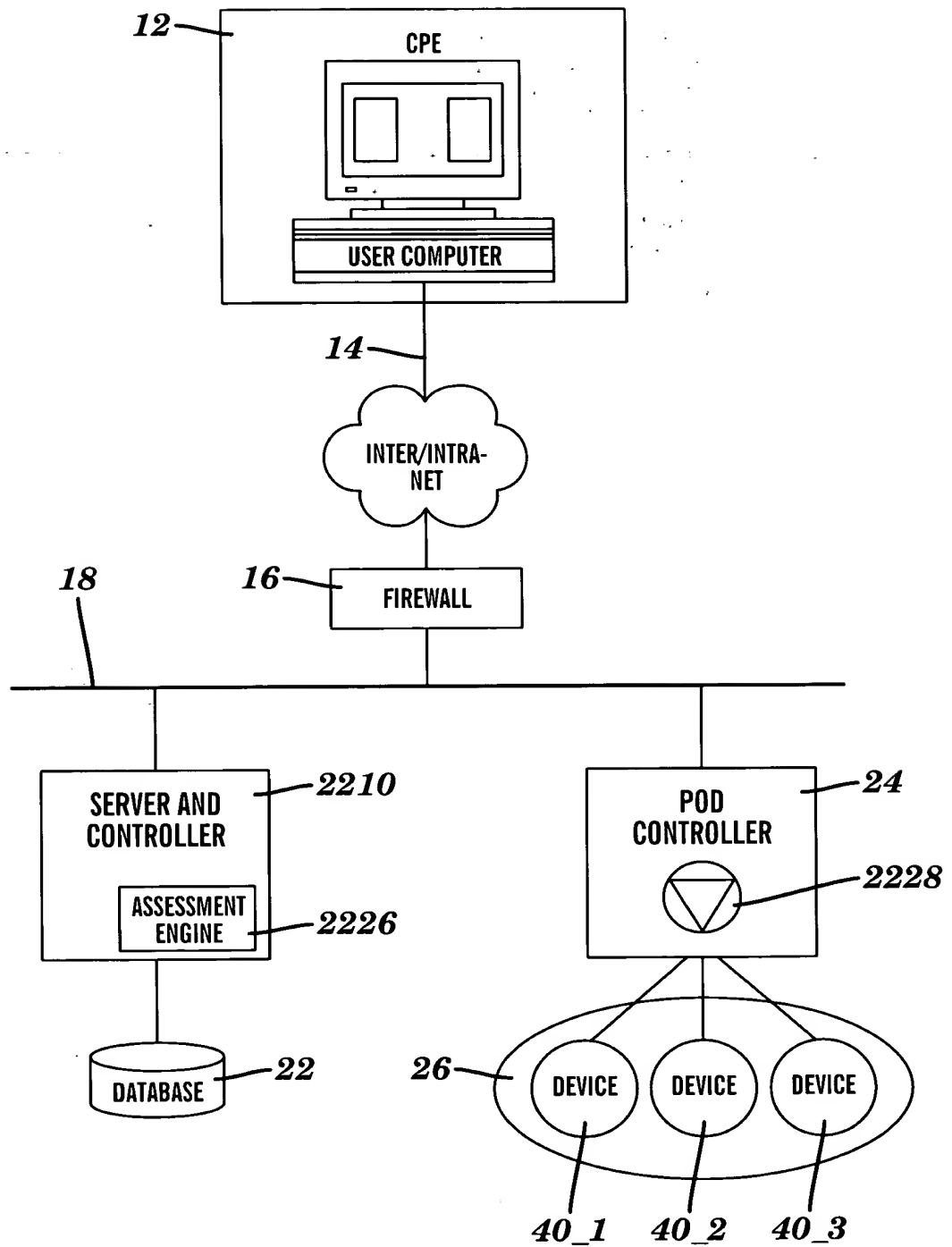
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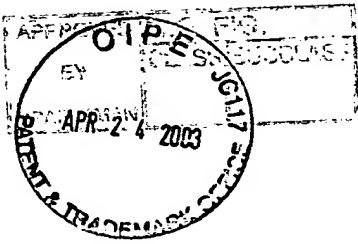
**FIG. 21**



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**FIG. 22**



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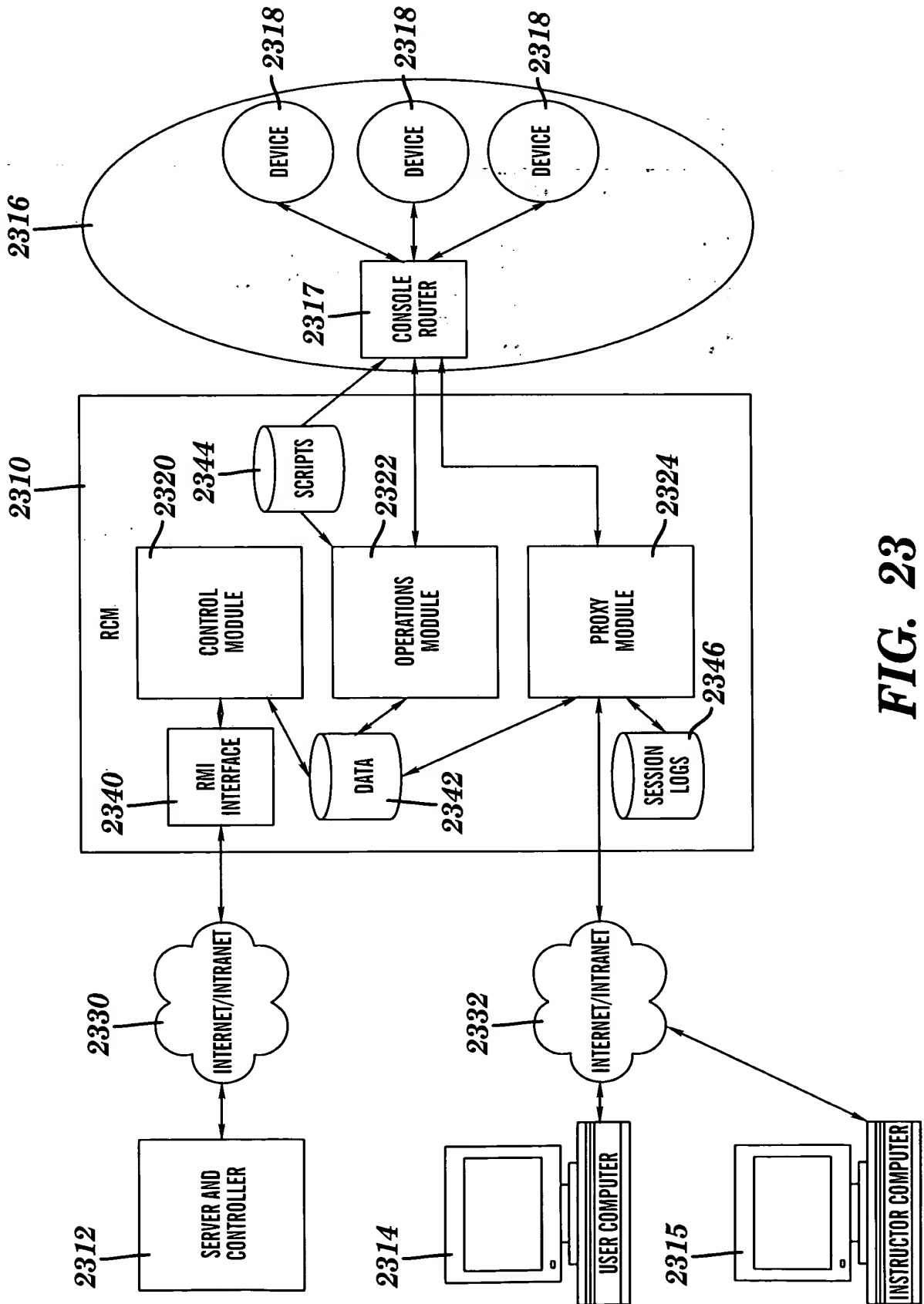
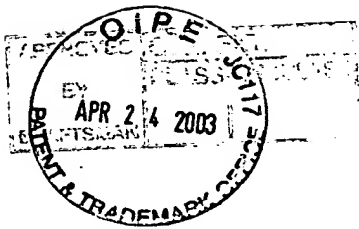


FIG. 23



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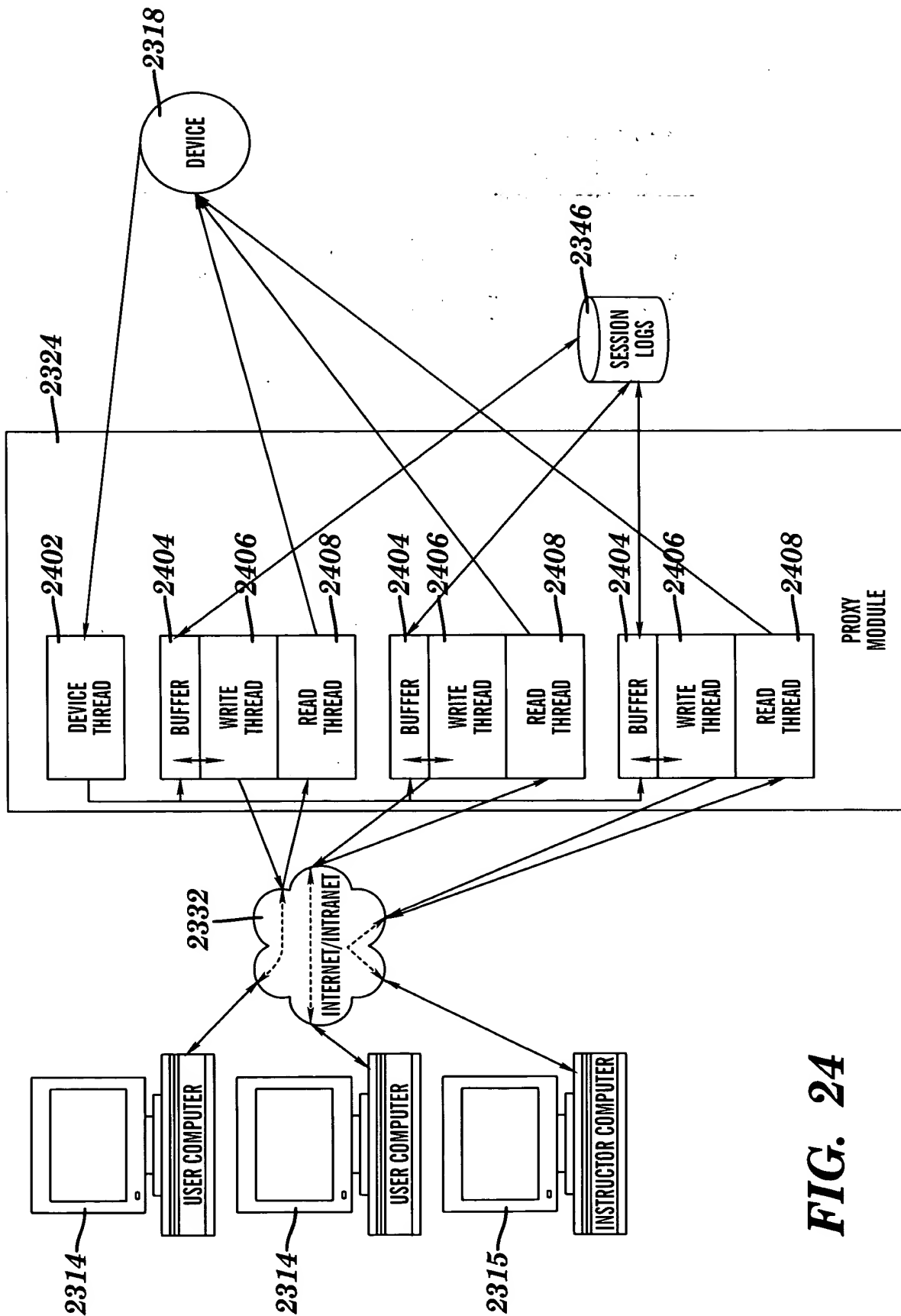


FIG. 24